

## Unit-I

- ① Explain the Electrical circuit elements each (or)  
Explain the V-I characteristic of Electrical elements?
- ② Explain the Kirchhoff laws with Examples?
- ③ Explain the series parallel combination of Electrical circuit elements.
- ④ Explain the Superposition theorem and problems?
- ⑤ Representing Sinusoidal response of wave forms
  - ① peak value
  - ② RMS value
- ⑥ phase representation, real power, Reactive power, Apparent power, Power factor?
- ⑦ 1- $\phi$  AC Analysis of RL, RC, RLC, Resonance
- ⑧ Small problem on above topics?

## **UNIT-II**

### **D.C GENERATOR:**

1. With neat sketch, explain the constructional details of a DC generator.
2. Explain the principle of operation of a dc generator.
3. Explain the types of DC generators.
4. Derive the expression for E.M.F equation of a D.C generator
5. Explain about OCC characteristics of a D.C generator

### **D.C MOTOR:**

1. Explain the working principle and operation of DC motor and also derive the torque equation.
2. Explain the applications of different types of D.C motors.
3. Describe the speed control methods of a DC motor.

### **TRANSFORMER:**

1. With neat sketch, explain the constructional details of single phase transformer.
2. Derive an expression for the induced emf of a transformer.
3. Explain the OC test and SC test on a single phase transformer with neat circuit diagram.

### **INDUCTION MOTOR**

1. Explain the working principle and operation of 3-phase induction motor

## **UNIT-III**

1. With the help of neat diagram explain the working principle of a Thermal Power plant/station.
2. With the help of neat diagram explain the working principle of a Hydro electric Power plant/station.
3. With the help of neat diagram explain the working principle of a Nuclear Power plant/station.
4. With the help of neat diagram explain the working principle of a Solar and Wind plant/station.
5. Explain the typical layout of a A.C power supply Scheme.

6. Explain in detail about Elements of a transmission line
7. What are the basic types of distribution system explain them elaborately

# ELECTRONICS

1. Illustrate with diagram and discuss about operation of full-wave bridge rectifier.
2. Draw the forward and reverse characteristics of a p-n junction diode and explain them qualitatively.
3. Describe about the volt-ampere characteristics of Zener diode with diagram.
4. Explain about the construction and operation of JFET with the essential diagrams:
5. Explain the input and output characteristics of a CE transistor configuration.
6. Draw the circuit of a transistor in CB configuration and explain its input & output characteristics.
7. Draw the diagram of basic differentiator and derive the equation for its output voltage.
8. Derive the for output voltage of an inverting and non-inverting opetational amplifier.
9. Define an op-amp. Explain the ideal characteristics of an op-amp.
10. Organize the op-amp with block diagram representation and explain the functionality of the each block.
11. What is a differential amplifier? Explain balanced and unbalanced output in differential amplifier.
12. Derive the expression for 3 input summing amplifiers with circuit diagram.
13. Explain the operation of BOD adder with the help of truth table.
14. What is the function of full adder? Draw and explain various implementations.
15. Explain the working of synchronous using J-K flip flop.
16. Explain the working of RS flip flop with the help of truth table.
17. What are the different types of shift registers? Explain any one type of shift register.
18. Define microcontroller? Explain the feature of microcontroller with block diagram.